

Background Eastern Africa is a vast area straddling the Equator at roughly between latitude 18° North and 25° South of the Equator. This region enjoys overhead or near overhead sunshine throughout the year receiving an estimated 200-275 W/M<sup>2</sup> of UVB annually. It is a region undergoing rapid socio-economic changes and thus impacting change in work habits and environment from the outdoors to the indoors. There however exists a dearth of vitamin D<sub>3</sub> data on people in this region despite the recognition of vitamin D<sub>3</sub> deficiency being a global epidemic. The purpose of this study was to examine the status of vitamin D<sub>3</sub> and central obesity in this clinical population and their relationship if any. Methods Serum 25(OH)D, Waist circumference (WC) and Waist to Hip ratio (WHR) data on 182 outpatients attending a Therapeutic Lifestyle Changes was retrospectively analyzed by gender, age category and ethnicity. Results Vitamin D deficiency and insufficiency in this clinical population in Eastern Africa, females had lower serum concentration, with the younger population having lower serum concentrations than the elderly. There was also a significant difference in serum levels when data was analyzed by ethnicity. Similarly central obesity was also highly prevalent in this population. The odds of being Vitamin D deficient was 3.3 times ( $p = 0.022$ ) higher among individuals with elevated waist circumference than those with normal waist circumferences. Among the males, the odds of being Vitamin D deficient and having an elevated waist circumference was 6.8 times ( $p = 0.011$ ) higher than for males with normal waist circumferences. This was however not observed among the females. Conclusion Living on or close to the equator and having overhead or near overhead sunshine throughout the year in and of itself is not a guarantee of adequate serum 25(OH)D concentrations. It may therefore be prudent for clinicians in this region to risk stratify their patients based on work location, age category and ethnicity.